Management of Patients Becoming Pregnant After Metabolic-Bariatric Surgery

A Guide for Health Care Professionals

This guide contains advice on points to consider in the management of patients who become pregnant after metabolic-bariatric surgery. This includes nutritional advice, monitoring and supplementation and when to refer to the Welsh Institute of Metabolic and Obesity Surgery team (WIMOS).

This is a guide only, individualised care should always be considered.

Contents

Introduction:

A strong message should be given to women to postpone pregnancy until their weight has stabilised following metabolic-bariatric surgery (MBS), typically at least a year. Patients should also be advised to avoid oral contraception, instead favouring long-active methods such as IUD which are less affected by surgery.

Changes to gut anatomy and physiology following MBS introduce the potential for malnutrition. This increases the chances of adverse perinatal outcomes, such as small for gestational age, preterm birth, congenital abnormalities and perinatal mortality. Pregnancy soon after MBS may also increase the risk of maternal morbidity and/or mortality. The patient should be urgently referred to obstetrics for consultant-led care as soon as pregnancy is confirmed.

1. Dietary Considerations:

There is a lack of evidence-based dietary advice for pregnant women who have previously undergone MBS. A poor diet during pregnancy is not uncommon. Emphasis should be placed on monitoring diet quality and nutritional status, encouraging a healthy dietary pattern and lifestyle. The individual's motivations should be assessed and discussed as they may still be focused on achieving significant weight loss.

After MBS there is emphasis placed on prioritising lean protein sources, followed by fruit and vegetables, and lastly starchy carbohydrates. Patients should typically aim to consume at least 60g protein/day. Energy requirements should be individualised on the basis of pre-pregnancy BMI, gestational weight gain and activity level. Where significant weight gain is identified, energy dense foods should be limited. See section 5 for gestational weight gain.

Where abnormal glucose levels arise or glycaemic control deteriorates during pregnancy, similar to women without surgery who develop gestational diabetes, it is recommended to reduce intake of rapidly absorbed carbohydrates, substituting with protein and low glycaemic index (GI) alternatives. For more general information on the use of Low GI foods, the British Dietetics Association offer a handy 'Food Fact Sheet' on the subject. See references for link.

2. Diabetes:

Pregnant women with a history of MBS without pre-existing diabetes should be routinely screened for gestational diabetes within local antenatal/antenatal diabetes services. The form of testing will need to be individualised to the local practice of speciality teams. They may consider an oral glucose tolerance test, fasting glucose and HBA1c. However, there should be an awareness on the accuracy and tolerability (dumping) of oral glucose tolerance testing due to physiological changes following bariatric surgery.

Pregnant women with diabetes/prediabetes/remission of type two diabetes should be seen for pregnancy counselling and assessment by local antenatal/diabetes antenatal specialist services.

3. Dumping Syndrome:

Symptoms of 'early' dumping syndrome are common after MBS. They often occur within 1 hour of eating most often after eating rapidly absorbed carbohydrates. Typical symptoms include dizziness, flushing, palpitations and diarrhoea. If this is suspected, it is recommended to:

- Reduce consumption of rapidly absorbed carbohydrates (aim for low GI)
- Avoid liquids 30minutes before & after eating to slow gastric emptying.
- Eat slowly and chew well, the '20-20-20' technique is often recommended following MBS. This involves:
    - Bite the size of a 20 pence piece (smaller cutlery can help)
    - Chew 20 times or more (until puree consistency)
    - Pause between each mouthful eg at least 20 seconds
    - Stop eating after 20 minutes
- Avoid caffeinated beverages
- Avoid alcohol (contraindicated throughout pregnancy)

'Late Dumping' (or Postprandial Hyperinsulinaemic Hypoglycaemia) can also occur 2-4 hours after eating. Although this is less common it can be serious. It should be considered in those with neuroglycopenic signs including dizziness or loss of consciousness in parallel with biochemical evidence of hypoglycaemia. Management of late dumping requires more careful manipulation of diet: Low GI foods, small and frequent intake, carbohydrates mixed with protein. Consider referral to your local endocrinology team for further management.

4. Nutritional Supplementation:

Ideally, micronutrient serum levels should be optimised 3-6 months prior to conception. There is a lack of evidence on the optimal nutritional monitoring and supplementation for pregnant women after MBS but the guidance outlined below has been published based on data available. This guidance relates to patients who have received

a Sleeve Gastrectomy, Gastric Band or Gastric Bypass. It is guidance only and individualised care should be considered:

A daily A-Z multivitamin and mineral prior to conception and throughout pregnancy. Forceval (capsule) is usually a safe recommendation as vitamin A is not in the retinol form (avoid Forceval SOLUBLE form). It provides the recommended following:

  - Copper (2mg)
  - Zinc (15mg)
  - Selenium (50ug)
- In addition:
  - Folic acid (5mg) for those with BMI>30 during the 1st trimester
  - Iron (>18mg if Adjustable Gastric Band (AGB), 45-60mg for Sleeve Gastrectomy (SG) or Roux en y Gastric Bypass (RYGB)) – adjust to maintain ferritin within normal limits. Note: Forceval capsule provides a 12mg contribution.
  - U.S. guidelines recommend Thiamine (>12mg) but no UK supplement provides this. Please see section 7.
  - Vitamin B12 IM injections at 1mg every 3 months (not routinely required for gastric band)
  - For Sleeve Gastrectomy or Gastric Bypass, supplement vitamin D (~1000IU) to maintain concentration of 75nmol/L or more with a serum PTH within normal limits. Calcium 1200-1500mg in divided doses (including diet). Often a combined calcium and vitamin D tablet x 2/day can achieve these.
- Vitamin E (15mg). Forceval achieves 10mg
- US guidelines also recommend Beta-carotene (vitamin A, 5000IU). This is hard to achieve with UK supplementation &

vitamin A deficiency is rare. We recommend be vigilant for deficiency symptoms e.g. night blindness
- Review vitamin and mineral prescription and any other over the counter supplements to check none contain vitamin A in the retinol form
- See further references for vitamin K deficiency treatment

Additional supplementation will likely be required for patients who have had surgery with higher malabsorptive risk such as a Single Anastomosis Duodenal-Ileal Bypass with Sleeve or Biliopancreatic Diversion and Duodenal Switch. For these procedures, see References section for the British Obesity and Metabolic Surgery Society (BOMSS) 2020 guidelines on routine higher supplementation and closer monitoring recommendations.

NOTE: Avoid vitamin A in the retinol form, which is potentially harmful in pregnancy.

NOTE: Where prolonged vomiting occurs, thiamine 300mg daily with vitamin B complex should be prescribed. Intravenous supplementation may be required if oral administration is not possible.

5. Blood Test Monitoring:

Ideally check the following preconception, after surgery, every trimester in pregnancy, 3 months post-partum, and during lactation if breastfeeding with amendment to supplementation as necessary:

- Folate
- Vitamin B12
- Ferritin
- Iron studies
- Full blood count
- Vitamin A - If unable, monitor for clinical signs of deficiency

The following is recommended to be checked every 6 months:

- Vitamin K & PIVKAII if coagulation abnormal
- Protein
- Albumin
- Vitamin D
- Calcium
- PTH
- Phosphate
- Magnesium
- Renal function
- Liver function
- Vitamin E if able to test
- Zinc
- Copper
- Selenium

NOTE: During pregnancy, serum levels of micronutrients can decrease as a result of expanding maternal blood volume and increasing foetus demands. See Further References for a resource to guide on adjusted lab values.

6. Gestational Weight Gain:

Weight should be discussed and monitored with a sensitive approach. Many patients have a complex history with associated psychological challenges. An understanding of their weight history is therefore recommended.

There is no known specific guidelines for gestational weight gain during pregnancy in women who have undergone MBS. Few studies which have focused on this suggest women who have undergone MBS gain less weight during pregnancy than those without surgery, particularly in the first 18 months.

Due to correlation between insufficient weight gain and adverse neonatal outcomes, international consensus recommendations suggest women who have undergone MBS adhere to Institute of Medicine guidelines. These are:

For a BMI Less than 18.5:

- Range of total weight gain: 28-40lbs (12.7-18.1kg)
- Weight gain rate during 2nd & 3rd trimester: 1lb/wk

For a BMI 18.5-24.9:

- Range of total weight gain: 25-35lbs (11.3-15.9kg)
- Weight gain rate during 2nd & 3rd trimester: 1lb/wk

For a BMI 25-29.9:

- Range of total weight gain: 15-25lbs (6.8-11.3kg)
- Weight gain rate during 2nd & 3rd trimester: 0.6lb/wk

For a BMI over 30:

- Range of total weight gain: 11-20lbs (5-9.1kg)
- Weight gain rate during 2nd & 3rd trimester: 0.5lb/wk

Patients should be counselled to avoid weight loss. For those in the first 12 months after MBS, weight loss is likely to still be experienced due to metabolic effects but should be limited with a focus on the need for fetal growth and development.

7. Nausea and vomiting

Nausea and vomiting early on in pregnancy ('morning sickness') is very common. MBS may compound this issue. Diet and lifestyle modifications to help manage these symptoms should be given much the same as those who have

had not had MBS i.e. avoiding foods/smells causing nausea, dry foods may be better tolerated, little and often plain foods, cold rather than hot, trial ginger, drink plenty of fluids. They should liaise with their obstetric team on whether antiemetics may be appropriate.

As with any pregnant women, should they not be passing sufficient urine or unable to keep food or fluids down for 24 hours or feel severely weak, dizzy or faint they should call their obstetric team, GP or 111.

Thiamine 300mg daily with vitamin B complex should be prescribed if prolonged vomiting occurs. Intravenous supplementation may be required if this is not possible. If they have likely suffered long-term insufficient nutrient intake, the reintroduction of macronutrients should take place gradually and preferably in an inpatient setting with close monitoring of electrolytes due to a risk of refeeding syndrome.

8. Breastfeeding:

Limited data is available but consensus is breastfeeding should be supported. Health benefits to breastfed infants by post-surgery mothers have been identified. Monitor maternal micronutrients during lactation as described to monitor for deficiencies which could contribute to adverse maternal or neonatal outcomes.

9. Emotional & Psychological Support

MBS is a life-changing operation which brings with it complex psychological challenges that can be difficult to process. Some individuals have a history of or pre-existing issues relating to body image with fear of weight regain. Combine this with hormone changes, psychological pressures and natural weight gain anticipated with pregnancy and you have an individual who may benefit from additional emotional and psychological support.

It is recommended adequate opportunity be given to discuss mental health and wellbeing in a secure and comfortable environment. Referral and signposting to the appropriate local health board and/or third party services should be readily offered and the need for these discussions be considered into timescales for review.

10. Onward Referral

The first line route to specialist advice in pregnancy should be via the relevant specialty within the patient's Local Health Board, according to the involved system. In particular, the patient's (or the emergency) obstetric team should be contacted where any concern regarding the pregnancy or maternal health is identified.

Consider referral to endocrinology where gestational diabetes or postprandial hyperinsulinaemic hypoglycaemia

are suspected. Chemical pathology and pharmacy can provide advice regarding parenteral or enteral micronutrient supplementation and administration. General surgery or gastroenterology may be appropriate for abdominal symptoms. Level 3 specialist weight management services exist in most health boards and may be able to offer support, please consult directly as practices differ.

Consider tertiary care referral to the Welsh Institute for Metabolic and Obesity Surgery (WIMOS) during pregnancy where patients are struggling with symptoms or conditions, despite implementation of the advice herein and/or relevant local specialist input, and are felt to warrant specific bariatric surgical review. Relevant symptoms may include:

- Sweating, dizziness or fainting after eating or drinking
- New difficulty swallowing
- Persistent excessive vomiting, not felt to be hyperemesis
- Abdominal pain felt by the obstetric team to be from a non-obstetric cause and not typical of gallstone disease
- Severe and refractory heartburn/reflux/night coughing despite dyspepsia medication
- Diarrhoea after eating or drinking

Note that there is no formal out of hours specialist bariatric cover. Emergency surgical input requests should be directed to the Local Health Board's general surgery service.

Consider a diagnosis of internal hernia in all patients who have undergone a gastric bypass procedure and experience severe, new onset abdominal pain. Internal hernia is more

common during pregnancy, can be life-threatening, and requires emergency referral to the nearest general surgical team for investigation.

If the patient has a gastric band they should inform the organisation who placed it of their pregnancy as they will need band adjustment if regular vomiting and possibly as pregnancy develops. Gastric band slippage is more common during pregnancy and should be considered in patients with new or worsening swallowing difficulty. Refer to local general surgery team as an emergency if not tolerating oral fluids; contact WIMOS for urgent assessment where there is dysphagia, but fluids are tolerated.

Symptoms and complications of gallstones are more common during pregnancy. This includes biliary colic, cholecystitis, pancreatitis, and obstructing bile duct stones. Consider ultrasonography and/or referral to the general surgery team if a gallstone diagnosis is suspected.

Queries and referrals to WIMOS should be directed to:

Team Co-ordinator: 01792703573
Address: WIMOS Metabolic-Bariatric Surgery Team, Morriston Hospital, Swansea, SA6 6NL

References:

American College of Obstetricians and Gynaecologists. **Weight gain during pregnancy. Committee opinion no. 548.** *Obstetrics and Gynaecology.* 2013 Jan;121(1):210-2. Available from: https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2013/01/weight-gain-during-pregnancy [Accessed 09/04/2024]

British Dietetics Association: **Glycaemic Index**. Available from: https://www.bda.uk.com/resource/glycaemic-index.html [Accessed 09/04/2024]

British Obesity and Metabolic Surgery Society. **Guidelines on perioperative and postoperative biochemical monitoring and micronutrient replacement for patients undergoing bariatric surgery – 2020 Update.** Available from: British Obesity and Metabolic Surgery Society Guidelines on perioperative and postoperative biochemical monitoring and micronutrient replacement for patients undergoing bariatric surgery—2020 update - O'Kane - 2020 - Obesity Reviews - Wiley Online Library [accessed 12/06/24]

Chapmon K, Stoklossa CJ, Benson-Davies S; Integrated Health Clinical Issues Committee of the American Society for Metabolic and Bariatric Surgery. **Nutrition for pregnancy after metabolic and bariatric surgery: literature review and practical guide.** *Surgery for Obesity and Related Diseases.* 2022 Jun;18(6):820-830. doi: 10.1016/j.soard.2022.02.019. Epub 2022 Mar 6. PMID: 35379565.

Denison FC, Aedla NR, Keag O, Hor K, Reynolds RM, Milne A, Diamond A, Royal College of Obstetricians and Gynaecologists. **Care of women with obesity in pregnancy: green-top guideline no. 72.** *BJOG: An International Journal of Obstetrics & Gynaecology*. 2019 Feb;126(3):e62-106.

Hazlehurst, J., Khoo, B., Lobato, C., Ilesanmi, I., Abbot, S., Chan, T., Pillai, S., Maslin, K., Purkayastha, S., McGowan, B., Andrews, R., Nicholson, E., McCullough, K., Albon, L., Batterham, R., Dimitriadis, G., Forbes, S., Bewick, G., Tan, T. (2024) **Society for Endocrinology guidelines for the diagnosis and management of post-bariatric hypoglycaemia.** *Endocrine Connections.* 13 e230285

Perinatology.com:**Reference ranges for lab values during pregnancy.** Available from: www.perinatology.com/Reference/Reference%20Ranges/Reference%20for%20Serum.htm [Accessed 09/04/2024]

Shawe J, Ceulemans D, Akhter Z, Neff K, Hart K, Heslehurst N, Štotl I, Agrawal S, Steegers-Theunissen R, Taheri S, Greenslade B. **Pregnancy after bariatric surgery: consensus recommendations for periconception, antenatal and postnatal care.** *Obesity reviews.* 2019 Nov;20(11):1507-22.

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